

AUGUST
1951

INNOVAL BEST FOR ALL ELECTRONIC APPLICATIONS

Amateur Radio

JOURNAL OF
THE WIRELESS
INSTITUTE OF
AUSTRALIA

For the Experimenter
and Radio Enthusiast



9_{D.}

Registered at G.P.O., Melbourne, for
transmission by post as a periodical.



PHILIPS
INNOVAL



Throughout the world
this symbol guides
the choice of millions

PHILIPS ELECTRICAL INDUSTRIES OF AUSTRALIA PTY. LTD.
SYDNEY — MELBOURNE — BRISBANE — ADELAIDE — PERTH

"HAM" RADIO SUPPLIERS

(KEN MILLBOURN, PROP.)

5A Melville Street, Hawthorn, Victoria

East Kew Tram Passes Corner, opposite Vogue Theatre.

Phone: Hawthorn 4465

Please make Money Orders and Postal Notes payable at North Hawthorn Post Office.

BARGAINS — BARGAINS — BARGAINS

Hallcrafters 838 Receiver, six valves, four bands 550 Kc. to 32 Mc., noise limiter, b.f.o., band-spread. 110 volt AC. A good second set. As traded **£15**

BC348 Receiver, six bands, 150 Kc. to 18 Mc. less broadcast band coverage. Converted to 6 volt operation. Less power supply and speaker **£37/10/-**

Command Receivers 3-6 Mc. Complete with valves, less genemotor **£8**

Radio Compass MN26C. Complete in carton. Coverage: 150 Kc. to 1,500 Kc. **£18**

Bendix Radio Receiver RA10FA, four bands: 150 to 500 Kc., 2.5 to 5 Mc., 2.5 to 5 Mc., 3 to 10 Mc. Complete with AC power supply, less dial and speaker, **£17/10/-**

SCR522 Transmitter Section, has two tested 832s, modulator two 12A6s Our Price **£12/10/-**

WANTED TO BUY:

9 or 18 volt input I.F.F. Genemotors for 15/- each

Meissner Frequency Standard, 200 Kc.-50 Kc.-10 Kc. Contains 1LN5 xtal osc., 1LN5 buffer amp., 1291 50 Kc. M/V, 1291 10 Kc. M/V, 3Q5 1st output amp., 3Q5 2nd output amp. Xtal frequency is 200 Kc. Complete with Instruction Book, spare set of valves and xtal, **£32/10/-**

Transceiver TR1143. English version of the 522. Contains 19 valves. As new **£10**

Hammarlund plug-in coil units, contains two variable condensers, coil formers, etc. Price **£3/10/-**

ASSORTED CRYSTALS AVAILABLE IN AND OUT OF ALL BANDS

Kingsley FM Adaptor, 455 Kc. Transformer, Complete with valves **£4**

New 24-volt Latch Ariel change-over Relays, ea. **21/-**
Relays, 24 volt, single contact each **2/6**

100 Watt Transmitter, rack and panel, three-stage, operating on 6 metre band. Separate power supplies for exciter and final stages. 50 watt modulator using 807s in Class AB1. Metered stages. Tried and proved, **£40**

25 Watt Transmitter: Two stages, 6V6 triode osc. into 807 in final. Modulator, 6B3J speech amp. transformer coupled to pair of 6N7s in Class B. 30 watt "ABAC" Modulation Transformer, meter switched stages. Contained in black crackle cabinet. Uses plug-in coils. Less power supply and microphone. Smart appearance and performs well **£25**

Teleradio Transmitter Type 18J6798. Similar to the 3BZ. 12 volt vibrator supply. Phone or C.W. Condition is as new **£22/10/-**

Tube Special—7193s, 5/- each

New Meters—0-500 microamps. **£1/2/6**

New Meters—0-1 Ma. full scale, square type **32/6**

New Meters—0-40 0-120 Ma., separate connection **£1/2/6**

VALVES, Tested, Out of Disposals Gear

5/- each—Bargain Price—CV6/7193, 6H6, 6SH7.

10/- each—2X2, 6C8G, 6G6, 6K7, 6X5, 12A6, 12AH7, 12SG7, 12J5, 879, 1629, 9003, 954, 955, 956, HV615.

10/- each—Metal: 6SS7, 12SJ7, 12SK7, 12SR7.

10/- each—Locktal type: 7G7, 7Y4, 7E6, 7A8, 7W7, 7N7, 7A4, 7F7, 1299, 1291, 1203A, 1201, 1LA6, 1LD5, 1LN5, 28D7.

12/6 each (new): 45, 6C4, 6L7.

15/- each—6SN7, 6SL7, 6AC7.

20/- each—6J6 (new), American 807.

50/- each—832.

A large variety of 2 volt Battery Valves are also in stock.

Packing Charge on all goods over 10 lbs. in weight, 5/- extra.

WANTED TO BUY—RADIO PARTS, VALVES, TRANSFORMERS, RECEIVERS, TRANSMITTERS, ETC.

AUGUST 1951

Vol. 19. No. 8

AMATEUR RADIO

Published by the Wireless Institute of Australia,
Law Court Chambers, 191 Queen Street,
Melbourne, C.I.

EDITOR:

T. D. HOGAN, VK3HX,
Telephone: UM 1732.

MANAGING EDITOR:

J. G. MARSLAND, VK3NY.

TECHNICAL EDITOR:

J. C. DUNCAN, VK3VZ.

TECHNICAL STAFF:

L. B. FISHER, VK3AFF.

COMPILATION:

R. W. HIGGINBOTHAM, VK3RN.

CIRCULATION:

I. K. SEWELL, VK3IK.

ADVERTISING REPRESENTATIVE:

W. J. LEWIS,
20 Queen St., Melbourne, C.I.
Telephone: MU 5154.

PRINTERS:

"RICHMOND CHRONICLE,"
Shakespeare St., Richmond, E.I.
Telephone: JB 2419.

MSS. and Magazine Correspondence should be forwarded to the Editor, "Amateur Radio," Law Court Chambers, 191 Queen St., Melbourne, C.I., on or before the 8th of each month.

Subscription rate in Australia is 9/- per annum, in advance (post paid) and A10/6 in all other countries.

Wireless Institute of Australia
(Victorian Division) Rooms' Telephone is FJ 6997.

EDITORIAL



A.O.C.P. Examination by the Quiz Method?

The introduction in New Zealand of the "quiz" type of examination for candidates sitting for the Amateur Operator's Certificate of Proficiency is, in the opinion of those who have investigated it, a very fair system by which to judge a candidate's ability and knowledge of his subjects. As many of us know, the system was used to advantage in the Services and has also found favour in Educational Departments, both in this country and abroad.

The system, correctly designed and operated, not only conveys to the examiner the information he requires regarding a candidate's knowledge, but it substantially reduces the amount of correcting work involved in a written examination, and quickly indicates whether a candidate really knows his work even if he is unable to put it on paper in precise words.

Years ago when the science of wireless communication was in its infancy compared to the present high standard, a number of questions with two or three alternative questions was deemed sufficient to gauge a candidate's knowledge. But today the old system is inadequate to cover the phases of the art, included in the standard required for the A.O.C.P. Some candidates who, by circumstances of learning, happened to have studied closely the few subjects chosen by the examiner, fail despite a wider knowledge, because they concentrated their studies on subject matter not included in the examiner's questions.

In seven questions it is obviously impossible to cover the knowledge required by the candidate. From the candidate's point of view it is just as difficult for him to keep in his mind the full range of knowledge of transmission and reception as is required of him to sit for the A.O.C.P. Why then should he not have the opportunity to bring to his mind under the beneficial "quiz" method the correct answer to a given question? If he knows his work he will answer correctly. If he doesn't know his work he will answer incorrectly or he will guess. He may guess right—he may guess wrong—but the system correctly presented will leave little doubt in the mind of the examiner concerning the ability or otherwise of the candidate before him.

It is not intended to infer that A.O.C.P. candidates should be examined more sternly, but rather more justly; that the examination be such that he can convey to the examiner a more complete picture of the scope of his knowledge rather than be confined to a minority of questions which, circumstantially, may fail him despite his wider knowledge whilst another will pass, with less knowledge, the same questions.

Federal Executive has been instructed by Federal Council to press for the introduction of the system in Australia. To us the advantages are so readily apparent we are hopeful the system will find favour in official circles as it has done in New Zealand.

FEDERAL EXECUTIVE

The Contents . . .

How Much "C"?	3	Commonwealth Jubilee VK-ZL	
Push Pull Cascode Crystal Converter	4	DX Contest	9
Army VT Numbers and Commercial Numbers	5	DX Notes by VK4QL	10
The Jubilee Relay	6	Ionospheric Predictions for the Amateur Bands	10
Fathers and Sons in Tragic Crash	7	Fifty Megacycles and Above	11
Amateur Call Signs	7	Federal, QSL, and Divisional Notes	12
Results of the 1951 National Field Day Contest	8		

Homecrafts

PTY LTD.

★ BARGAINS ★
FOR THE RADIO
ENTHUSIAST!



★ RADIOGRAM CABINETS

Walnut Piano Finish Radiogram Cabinet, suitable for 4 or 5 valve Table Radiogram, as illustrated, £7/10/6.



★ DISPOSAL BARGAIN TELEPHONES

These have a 15 mile range. As illustrated, cut to only 25/-. Batteries 5/6 extra.



★ ENGLISH INVERTERS

Votrola 32 volt D.C. input, 240 volt 50 cycle output at 100 w. £25/17/-. Also available: 6 or 12 volt to 240 volt at 100 watts, Price £42/18/6.



★ TURNING HEAD TORCHES

Focusing, turning head Torches, all-chrome finish, with belt or pocket clip. As illustrated, 18/6.



★ VIBRATORS

12 volt non-synchronous four pin Vibrators, cut to only 13/11.



★ HOME BROADCASTER MICROPHONES

Will work with any ordinary radio. Adds fun to a party. Cut to only 7/11.



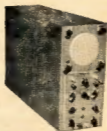
★ FOUNDATION KIT

Bargain! A few more available! Bakelite Cabinet, chassis, front mounting plate, and dial assembly. As illustrated, only 45/-.



★ ENGLISH D104 CRYSTAL MICROPHONES

D104 Crystal Microphones with high fidelity crystal. As illustrated. Price £5/19/6.



★ HOMECRAFTS' CATHODE RAY OSCILLOGRAPH

● 5 inch Tube: ● AC/DC Amplifier: ● High sensitivity: ● Wide frequency range. Price, as illustrated, £18 plus 8-1/3 per cent sales tax. (Terms available.)



★ DISPOSAL BARGAIN

Three inch scale Ferranti Moving Coil 0-500 volt Meters. Only 32/6.



★ EDMAC TRANSMITTING TUBES

- Type 33T - £3/19/-
- Type 367G - £4/12/6
- Type KY21 - £5/17/-
- Type RC21 - £4/9/-



★ STREAMLINED STEEL SPEAKER BOXES

As illustrated, with brown crackle finish. Suitable for speakers up to 8 inch. Price, 45/-.



★ BRAND NEW 6X1G VALVES

Loose base only. Cut to 8/11, plus 9d. packing charge.



★ FLESSY SINGLE RECORD PLAYERS

Automatically places pick-up on record, also has automatic stop. Model available with magnetic pick-up, £8/15/-; with Acos Crystal pick-up, £9/13/2; Decca Hi-Fi lightweight pick-up, £12/16/-.

SPECIAL SNAP BARGAINS

- ★ 3 P.S.T. Toggle Switches - only 1/8 each
- ★ Four Valve Stool Chassis - only 1/- each
- ★ Brand new latest type Collaro High Fidelity Pick-ups - 29/11
- ★ Disposal 2,000 ohm Headphones - only 19/11
- ★ Leatherette covered Portable Cabinets - 9/11 each
- ★ Morse Keys, available in two sizes - small size, 1/-; large size, 2/-
- ★ Crown S.T.I. Full Vision D/W Dials - only 9/11

COUNTRY AND INTERSTATE CLIENTS

PLEASE ADD FREIGHT OR POSTAGE.

290 LONSDALE STREET, MELBOURNE

Central 4311

HOW MUCH "C"?

BY R. M. WINCH*, VK2OA

How many capacitors have you taken out of disposals equipment and put on one side because you did not know their size? How many moulded mica capacitors with the markings rubbed off are there in your junk box? Are you wondering whether that little tuning capacitor is 100 pF., or perhaps only 75 pF.?

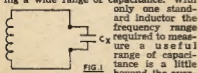
In other words, how often have you asked yourself, "How much C?" Practically every piece of equipment you have built, and will build, contains as many, if not more, capacitors as resistors and accuracy of C is just as important as accuracy of R. An ohm meter is regarded as an essential in every shack, yet C is guessed at or the manufacturer's markings are relied upon implicitly, merely because no means are at hand to make a measurement of C. Nevertheless, C is not very hard to measure.

There are several ways of measuring capacitance. It can be measured by applying a known voltage of a known frequency and measuring the resultant current flow. This actually measures the impedance of the capacitor, but for all practical purposes the accuracy is good enough. The disadvantages of this method make it unsuitable for general use in the Ham shack. Another method which gives good measurement accuracy is the bridge. However, a reasonably accurate capacitance bridge is quite an item of equipment in any man's language.

There is another method of measuring capacitance which can be made to give very good results with a minimum of gear and not much work. By connecting the unknown capacitor across a known inductor and measuring the resonant frequency of the combination with a grid dip meter, the value of the capacitor may be derived from a comparatively simple formula.

If you have not already built yourself a grid dip meter which has a wide range and is fairly accurately calibrated it is time you did so. You will have no idea just how useful an instrument it is until you have built—and used one.

However, the simple LC circuit shown in Fig. 1 is not very suitable for measuring a wide range of capacitance. With



only one standard inductor the frequency range required to measure a useful range of capacitance is a little beyond the average grid dip meter. A simple calculation will show that a range of 10 pF. to 0.1 uF. would require a frequency range of 100 to 1. Again, it is necessary to know the inductance of our standard inductor rather accurately. We also need

to know the self-capacitance of the standard inductor. These disadvantages can be overcome by a small re-arrangement of the circuit. Firstly, the low frequency end of our measuring range can be brought within practical limits by using a known capacitor in series with the capacitor under test. This limits the maximum amount of capacitance in circuit. The high frequency end can be similarly dealt with by shunting a capacitor across the standard inductor, thus setting a minimum to the amount of capacitance in circuit.

These two modifications have further advantages which are not quite so obvious. The shunt capacitor can be adjusted to any convenient fraction of the series capacitor by a frequency ratio measurement. This makes it unnecessary to know the size of the inductor. The self-capacitance of the inductor has disappeared into the shunt capacitor and may be forgotten.

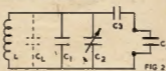


Fig. 2 is the circuit of a practical unit using these principles. L is a coil of convenient size (in the author's case, the oscillator coil from a defunct F56). C1 is the self-capacitance of L, C2 is a fixed 100 pF. mica condenser, C3 is a 3-30 pF. tubular trimmer (again from disposals), C4 is 0.005 pF. $\pm 2\%$, and Cx is the capacitor being measured. C1 + C2 + C3 is adjusted to equal 125 pF.

When Cx has a capacitance of infinity (short circuit) the total capacitance in circuit is 5125 pF. When Cx is zero (open circuit) the total capacitance is 125 pF. If F is the resonant frequency when Cx is infinity, F1 the resonant frequency when Cx is zero, and F2 the resonant frequency when Cx is some value intermediate between infinity and zero, then—

$$F_1 = F \sqrt{\frac{125}{5125}}$$

and

$$F_2 = F \sqrt{\frac{5125}{125 + \left(\frac{5000 \times C_x}{5000 + C_x} \right)}}$$

Since L, C1, C2 and C3 are fixed, and permanent quantities, F1 may be calculated for various values of Cx and curves plotted so that Cx may be read off directly. The value of F should be chosen to suit the ranges of your grid dip meter. In the author's case the lower limit of one range on the grid dip meter is 870 Kc. so a value of 900 Kc. was chosen for F. This makes F1 equal to 5762 Kc. and gives a useful range of from 0 pF. to 0.1 uF. with a minimum accuracy of 10%

The construction of the unit is not at all critical but a little care should be taken to make the wiring rigid. If a slug tuned inductor is used it is recommended that a locknut be placed on the slug adjusting screw so that it may be locked permanently in position after the final adjustment. In use, the normal coupling to the grid dip meter to give a discernible movement of the meter needle is necessary to obtain accurate measurements.

L and Cx are adjusted as follows: Short out the C2 terminals and adjust L so that the resonant frequency is 900 Kc. Now open circuit C2 and adjust Cx to give resonance at 5762 Kc. If the circuit will not resonate to 5762 Kc. at any setting of Cx this indicates that Cx has a value which is not close enough to 100 pF. It may be necessary to change Cx if the highest resonant frequency is lower than 5762 Kc. If the resonant frequency with Cx at maximum setting is higher than 5762 Kc. it will be necessary to change Cx or else add another small condenser in parallel with Cx to bring it closer to its normal value of 100 pF. Check again with Cx short circuited and if necessary readjust L. Re-check at 5762 Kc. and then you are ready to measure the capacitance of anything between a short piece of twine and your grandmother's false teeth.

To save wear and tear on your slide rule, a table is appended which gives:—

Col. 1—Values of Cx

Col. 2—Corresponding values of $125 + \left(\frac{5000 \times C_x}{5000 + C_x} \right)$ in pF.

Col. 3—Resultant resonant frequency in Kc.

Infinity	5125	900
0.1 uF.	4887	921.3
0.05 uF.	4804	924
0.02 uF.	4632	927
0.01 uF.	4791	931
0.005 uF.	4741	936
0.002 uF.	4670	943
0.001 uF.	4570	953
0.0005 uF.	4411	970
0.0002 uF.	4125	1003
0.0001 uF.	3459	1095
0.00005 uF.	3341	1115
0.00002 uF.	3201	1139
0.00001 uF.	3042	1168
0.000005 uF.	2850	1207
0.000002 uF.	2625	1257
0.000001 uF.	2347	1330
0.0000005 uF.	2000	1440
0.0000002 uF.	1524	1650
0.0000001 uF.	1279	1801
0.00000005 uF.	958	2081
0.00000002 uF.	888	2162
0.00000001 uF.	815	2256
900 pF.	739	2370
800 pF.	661	2500
700 pF.	580	2675
600 pF.	495	2896
500 pF.	408	3185
400 pF.	317	3618
300 pF.	271	3914
200 pF.	223	4314
100 pF.	213	4415
90 pF.	203.7	4514
80 pF.	194	4636
70 pF.	184.3	4745
60 pF.	174.5	4878
50 pF.	164.7	5021
40 pF.	154.8	5180
30 pF.	144.9	5350
20 pF.	135	5545
10 pF.	125	5762

* 38 Boundary St., Parramatta, N.S.W.

Push Pull Cascode Crystal Converter

BY C. H. CASTLE,* VK5KL

ALWAYS on the look out for something better and to try anything new, we are striving for improvement each year. The author was more than satisfied with the line-up of RL37 grounded grid series plate tuned r.f., 9002 mixer, 9002 osc., and 9002 cathode follower combination of last year, but the introduction of crystal converters was very impressive and the advantages were so obvious that it was labelled as a must for the new converter and next DX season on 50 Mc.

As soon as the DX waned early in 1950, thoughts turned to designing a new front end; something that must include all the best advantages known.

The Points strived for were:—

- ★ High Signal to Noise Ratio.
- ★ Sensitivity.
- ★ Selectivity.
- ★ Stability of Oscillator.
- ★ Accurate Frequency Calibration.
- ★ Absence of Birdies.

One fault of tuning a converter with the oscillator near the signal frequency is that a highly accurate dial is unobtainable, however by using a converter with the osc. xtal controlled, no dial is needed on the converter itself and number one bug-bear is ousted.

The converter osc. being fixed, one must use the receiver the converter is fed into, as the tunable intermediate frequency. Having a BC453B Command receiver available (tuning 3 to 6 Mc.), this was ideal for the job, and by choosing a 9.4 Mc. xtal and taking off the 5th harmonic, giving 47 Mc. for the converter osc., 50 to 53 Mc. is tuned by actually tuning 3 to 6 Mc. on the Command receiver.

The dial on the Command gives both good band spread and the accurate calibrations are easily converted to read as at 50 Mc. A signal on 50.2 will be tunable at 3.2 Mc. and a signal at 50.5 at 3.5 Mc. and so on. Here we have obtained three of our wanted ideals: stability, accurate frequency calibration, and selectivity due to the double conversion.

ABSENCE OF BIRDIES

These beats are caused in a lot of ways: Strong signals beating with your converter oscillator or the i.f. receiver oscillator, and beating at one or both i.f. frequencies; one oscillator harmonic beating with the other or even with the b.f.o. A lot can be traced to coupling of circuits via the power supply leads.

To eliminate the causes, the trouble was tackled from the start on the design board. Special condensers are used in series with all B positive and filament leads above ground. Connected as near as possible to the components and at the other end the lead goes away through the chassis. These condensers are made of pieces of brass plate $1\frac{1}{2} \times \frac{1}{2}$ and have a thin sheet of mica for the dielectric in the chassis. They keep down the inductance factor, and by-pass

all r.f. getting back into the power supply, or coupling to other stages via the wiring.

Small insulating bushes were made from springback terminals. After passing through the chassis, all the filament and B positive wiring is outside of the compartments housing the r.f. components. If you still get beats, I suggest you try these series condensers, one in the B positive lead to the mixer oscillator circuit in your i.f. receiver, and also in the b.f.o. B positive lead.

LAYOUT

The chassis is $15 \times 8 \times 3\frac{1}{2}$, made of 18 gauge copper. Large, no doubt, for the job, but then the special condensers take up some room and it is handy to be able to work in comfort. Space has not been sacrificed for efficiency. The signal enters one end and passes straight down the centre to the output. The xtal oscillator is the only stage out of line. All leads from the condensers are of copper foil $3/16$ wide as also are the earthing leads.

The xtal oscillator section is entirely shielded and the link taken through a piece of tubing into the mixer compartment. A shield is run across the chassis and mounted so that it divides the four grid connections in each RL37 and to which they are soldered. This makes the earth connections short and also shields the input from the output circuit in the r.f. stage.

A small shield was also mounted to isolate the filament r.f. choices of the

RL37s from the 6J6 plate chokes where they run parallel to each other. All shields are of copper.

Now for the converter itself. Several months' work has gone into the design layout and testing of each stage for maximum performance.

CRYSTAL OSCILLATOR

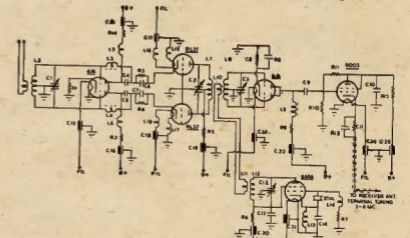
The circuit used is a 6AK6 tritet. After several weeks of testing harmonic oscillators of different varieties, this was chosen because of most reliability. Once output is obtained at 47 Mc., the circuit constants were varied until maximum output was obtained with the least plate voltage. The L to C ratios are the important factor. The output is link coupled to the mixer by a small two-turn link at the centre of the mixer coil and by a one-turn at the cold end of the oscillator plate coil.

MIXER

Tube chosen is the 6J6 because of the good signal to noise ratio obtained by using a push pull input to the grids and parallel plate output. This also tends to cancel out oscillator conversion noises, etc.

It is coupled to the cathode follower by a 1600 Kc. i.f. transformer which has had the padder condensers taken off and the two windings connected in series. This will then resonate around 4 Mc. and when placed in the circuit is broad enough to pass signals from 3 to 6 Mc.

(Continued on Page 6)



- C1, 2, 3—15 pF. butterfly.
- C4, 5—50 pF. silver mica.
- C6, 7—0.001 uF. sil. mica.
- C8, 10—0.0005 uF. mica.
- C9—0.0001 uF. mica.
- C11—0.001 uF. mica.
- C12—8 pF. butterfly.
- C13—0.01 uF. mica.
- C14—3-30 pF. trimmer.
- C15 to C26—Special condensers, see text.
- R1—60 ohms.

- R2, 5, 9, 12, 13, 14—1,000 ohms.
- R3, 4—130 ohms.
- R6—250 ohms.
- R7—50,000 ohms.
- R8—450 ohms.
- R10—5,000 ohms.
- R11—200,000 ohms.
- L1—2 turns.
- L2, 7, 8—12 turns, $\frac{1}{4}$ dia. inside, 16 gauge.
- L3, 4—24 turns, $\frac{1}{4}$ dia. slug tuned.

- L5, 6—18 turns, $\frac{1}{4}$ dia. 18 gauge.
- L8—Revamped 1,600 Kc. i.f. see text.
- L10, 11—2 turn link.
- L12—11 turns, $\frac{1}{4}$ dia. inside, 16 gauge.
- L13—24 turns, $\frac{1}{4}$ dia. slug tuned.
- L14—2.5 mH. RFC.
- L15, 16, 17, 18—24 g. wire wound full length on 1 meg. 1 w. resistors.

*Rose Terrace, Wayville, South Aus.

Army VT Numbers and Commercial Numbers

VT No.	Commercial No.	VT No.	Commercial No.	VT No.	Commercial No.	VT No.	Commercial No.	VT No.	Commercial No.
VT1	WE203A*	VT60	859	VT108	4507TH	VT159	Spec. Tube	VT217	811
VT2	WE 203B	VT62	801, 801A	VT109	2051	VT160	Spec. Tube	VT218	100TH
VT3	*	VT63	46	VT111	5BP4/1802P4	VT161	12SA7	VT219	*
VT4A	*	VT64	800	VT112	6AC7/1852	VT162	12SJ7	VT220	2507H
VT4B	211	VT65	6C5	VT114	5T4	VT163	6C9G	VT221	3Q5GT
VT4C	JAN 211	VT65A	6C5G	VT115	6L6	VT164	1619	VT222	894
VT5	WE215A	VT66	6F6	VT115A	6L6G	VT165	1624	VT223	223
VT6	212A*	VT66A	6F6G	VT116	6SJ7	VT166	371A	VT224	RK34
VT7	WK12*	VT67	30 Spec.	VT116A	6SJ7GT	VT167	6K8	VT225	307A
VT8	UV204*	VT68	6B7	VT116B	6SJ7Y	VT167A	6K9G	VT226	3EP1/1806P1
VT10	*	VT69	6D6	VT117	6SK7	VT168A	6Y8G	VT227	7184
VT11	*	VT70	6E7	VT117A	6SK7GT	VT169	12C8	VT228	8012
VT12	*	VT72	842	VT118	832	VT170	1E5GP	VT229	6SL7GT
VT13	*	VT73	843	VT119	2X2/879	VT171	1R5	VT230	350A
VT14	*	VT74	524	VT120	954	VT171A	1R5 (octal)	VT231	6SN7GT
VT16	*	VT75	75	VT121	955	VT172	1S5	VT232	E1148
VT17	860	VT76	76	VT122	930	VT173	1T4	VT233	6SB7
VT18	*	VT77	77	VT123	RCA A5586	VT174	3S4	VT234	HY114B
VT19	861	VT78	78	superceded by VT128		VT175	1613	VT235	HY615
VT20	*	VT80	80	VT124	1A5GT	VT176	6AB7/1853	VT236	836
VT21	*	VT83	83	VT125	1C5GT	VT177	1LH4	VT237	957
VT22	204A	VT84	84/624	VT126	6X5	VT178	1LC6	VT238	956
VT23	*	VT88	6K7	VT126A	6X5G	VT179	1LN5	VT239	1LE3
VT24	864	VT88A	6K7G	VT126B	6X5GT	VT180†	3LF4	VT240	710A
VT25	10	VT88B	6K7GT	VT127	Spec. Tube	VT181	7Z4	VT241	7ER/1201
VT25A	10 Spec.	VT87	6L7	VT127A	Spec. Tube	VT182	3B7/1291	VT243	7CA/1203A
VT26	22	VT87A	6L7G	VT128	1630 (A5586)	VT183	1R4/1294	VT244	5U4G
VT27	30	VT88	6R7	VT129	304TL	VT184	VR90/30	VT245	2050
VT28	24, 24A	VT88A	6R7G	VT130	250TL	VT185	3D6/1299	VT246	918
VT29	27	VT88B	6R7GT	VT131	12SK7	VT186	Spec. Tube	VT247	6AG7
VT30	01A	VT89	89	VT132	12K8 Spec.	VT187	575A	VT248	1808P1
VT31	31	VT90	6H6	VT133	12SR7	VT188	7E8	VT249	1006
VT32	*	VT90A	6H6GT	VT134	12A6	VT189	7F7	VT250	EF50
VT33	33	VT91	6J7	VT135	12J5GT	VT190	7H7	VT251	441
VT34	207	VT91	6J7GT	VT135A	12J5	VT191	316A	VT252	923
VT35	35/51	VT92	6Q7	VT136	1625	VT192	7A4	VT254	304TH
VT36	36	VT92A†	6Q7G	VT137	1626	VT193	7C7	VT255	705A
VT37	37	VT93	6E8	VT138	1629	VT194	7J7	VT256	ZF466
VT39	869	VT93A	6E8G	VT139	VR150/30	VT195	1005	VT257	K7
VT39A	869A	VT94	6J5	VT140†	1628	VT196	6WSG	VT259	829
VT40	40	VT94A	6J5G	VT141	531	VT197A	5Y3GT/G	VT260	VR75/30
VT41	851	VT94B	6J5 Spec.	VT142	WE39DY1	VT198A	6G6G	VT264	3Q4
VT42	872	VT94C	6J5G Spec.	VT143	805	VT199	6SS7	VT266	1618
VT42A	872A Spec.	VT94D	6J5GT	VT144	813	VT200	VR105/30	VT267	578
VT43	845	VT95	2A3	VT145	823	VT201	25L6	VT268	12SC7
VT44	32	VT96	6N7	VT146	1N5GT	VT201C	25L8GT	VT269	717A
VT45	45	VT96B	6N7 Spec.	VT147	1A7GT	VT202	9002	VT277	417
VT46	860	VT97	5W4	VT148	1D8GT	VT203	9003	VT279	GY3
VT46A	860A	VT98	6U5/6C5	VT149	3A8GT	VT204	HK24G	VT280†	C7063
VT47	47	VT99	6F8G	VT150	6SA7	VT205	85T7	VT281†	HY1452T
VT48	41	VT100	807	VT150A	6SA7GT	VT206A	5V4G	VT282	ZG489
VT49	39/44	VT100A	807 Mod.	VT151	6A8G	VT207	12AH7GT	VT283†	QF206
VT50	50	VT101	837	VT151B	6A8GT	VT208	7B8	VT284†	QF197
VT51	841	VT102	Cancelled	VT152	6K6GT	VT209	12SG7	VT285†	QF200C
VT52	45 Spec.	VT103	6SQ7	VT152A	6K6G	VT210	1S4	VT286	832A
VT53	(VT42A)	VT104	12SQ7	VT153	12C6 Spec.	VT211	6SG7	VT287	815
VT54	34	VT105	6SC7	VT154	814	VT212	958	VT288	12SH7
VT55	865	VT106	808	VT155	Spec. Tube	VT213A	6L6G	VT289	12SL7GT
VT56	56	VT107	6V6	VT156	Spec. Tube	VT214	12H6		
VT57	57	VT107A	6V6GT	VT157	Spec. Tube	VT215	6E5		
VT58	58	VT107B	6V6G	VT158	Spec. Tube	VT216	816		

* Obsolete.
† Indicates VT number cancelled.

THE JUBILEE RELAY

The Jubilee Relay Contest will take place during the month of September and should be a further means of making known Australia's Jubilee and the Jubilee VK-ZL DX Contest to be held during October.

Australian and New Zealand contestants will endeavour to send this message to as many foreign stations as possible:—

- "Australia celebrates its Jubilee this year and invites you to join in the Jubilee VK-ZL DX Contest during October."

Australian stations will add the signature W.I.A., and New Zealand stations N.Z.A.R.T.

RULES

1. The Contest will commence at 0001 hours G.M.T. on 1st September, 1951, and conclude at 2359 hours on 29th September, 1951.
2. Phone or c.w. may be used and all bands.
3. One point is gained for each contact and total points are obtained by multiplying total contacts by number of countries worked on each band.
4. Logs must be in the hands of the Contest Committee, Box 1734, G.P.O.,

Sydney, not later than 30th October, 1951. Logs should show: Date and time of contact, band, and station worked. A summary should be given showing final score.

5. A trophy will be awarded the highest scoring station in both Australia and New Zealand and Certificates to each District or State.

6. The decision of the W.I.A. Federal Contest Committee shall be final and binding.

7. From the above rules you will see that the Contest has been made very simple and should do much to publicise the main Contest, viz.: The Jubilee VK-ZL. Please send in your log irrespective of the number of contacts.

CRYSTAL CONVERTER

(Continued from Page 4)

THE CATHODE FOLLOWER

This was considered a necessary item and is excellent for changing from high impedance to low as required for the input to the Command receiver.

The resistor R11 was found to improve the output considerably.

THE K.F. STAGE

Last year's lesson showed that the aerial fed into a grounded grid r.f. stage was broad and insensitive, in as much

as strong signals at the i.f. frequency filtered through. It has been said that a grounded grid stage will perform better when driven, so much thought was given to this. Something in keeping with the 6J6 mixer was sought after.

One that seemed would do was the cascade circuit reputed to give good signal to noise ratio. But this was single ended. Wanting to keep everything symmetrical, the push pull cascade circuit as shown was developed. The plate circuit is inductively coupled to the mixer. Neutralisation of the 6J6 is obtained by using slug tuned inductances. Although not critical, when neutralised exactly the signal to noise ratio is improved.

The Aerial Coil.—A two-turn link at the centre of the input coil is used. At this stage two more points are gained. High signal to noise ratio and sensitivity.

In conclusion, the special condensers can be made as per page 46 "QST," September, 1948, but take a little longer to make.

The coils are best checked by a grid dip meter to set them correctly in the shortest time, especially the inductance neutralising coils.

The converter has been used on 50 Mc. during the past few months and has performed very nicely. With what has been found in practice and in light of a few articles from overseas, the full benefit of the circuit design does not show up at 50 Mc., but should be very beneficial and a great advantage at 144 Mc. It will be changed to this band later and results compared with other receivers on that band.

ELECTRONIC
A & R
EQUIPMENT

A & R

ELECTRONIC
A & R
EQUIPMENT

Transformers and Reactors

With quality as the prime factor, A. & R. Products are developed to give lasting and highly satisfactory performance. We market our Transformers to satisfy the needs of the customer who buys on value and not on price.

At present the accent is again on high fidelity audio reproduction, and with the advent of a wide range disc and tape recording, together with pick-ups and speakers, better class equipment is required to fully utilise these wide range components.

Aware of these requirements, we have, for quite some time, been manufacturing wide frequency range Audio Transformers for almost every purpose. Our catalogue of Transformers and Reactors, which may be obtained on request, gives a large selection to choose from, whether the requirements be for Audio, Radio, Theatre, Domestic or Industrial use.

FOR VALUE AND RELIABILITY INSIST ON A. & R.

Available from—

MELBOURNE: Wm. Willis & Co.
J. H. Magrath & Co. Pty. Ltd.
Homecrafts Pty. Ltd.

ADELAIDE: Gerard & Goodman Ltd.
WEST. AUST.: A. J. Wyle Pty. Ltd.
TAS.: A. H. Gibson Electrical Pty. Ltd.

A. & R. Electronic Equipment Co. Pty. Ltd.

378 ST. KILDA ROAD, MELBOURNE, S.C.1

Phones: MX 1159, MX 1150

Fathers and Sons in Tragic Crash

VK7MC and Son, Athol, Killed

It is with deep regret that we learnt that VK7MC and his son, Athol, were killed in an accident, together with Mr. S. V. Sydes and his son, on Sunday evening, 8th July.

The four people were killed when their car plunged over the St. Paul's River Bridge at Ayres and crashed on to rocks 80 feet below. They were Stanley Vale Sydes (about 41 years), Peel Street, Launceston; his son, Edward (16); Ernest Edward Sydes (about 45), VK7MC, 41 Baine Ter., Trevelyan; and his son Athol (17).

The accident occurred about 7 p.m. when they were returning to Launceston from Coles Bay, where they had been building a week-end shack.

It is believed that the car skidded on the bridge and got out of control. It plunged over the edge of the bridge and landed upside down a few feet from the edge of the water. The car was wrecked and a small trailer being towed by the car broke loose after the impact.

The two men were killed instantly. The boys were rushed to the Launceston General Hospital but they died shortly after admission.

RADIO OFFICIALS

Mr. Sydes was manager of radio station TLA and Mr. Cooper (VK7MC) was the chief engineer at TLA.

Mr. Sydes joined in 1930 and studied the technical branch of broadcasting. His tutor was the chief engineer (Mr. V. Brooker) and after three years he was awarded his technical certificate. When Mr. Brooker resigned as chief engineer in 1934, Mr. Sydes was given the appointment and held the position until 1945, when he was promoted to manager.

He took an active interest in the affairs of the Australian Federation of Commercial Broadcasters Station and was secretary of the Tasmanian Branch. He was a member of the Launceston Rotary Club and assisted in the organization of Courtesy Week held last month. He was also a former member of the Apex Club.

Mr. Sydes was a director of station 7QT Queenstown. His main hobby was amateur photography. He married Miss Judith McGlashan, of Sydney, who was the first woman radio announcer employed by TLA.

TECHNICAL EXPERT

Mr. Cooper was interested in all phases of radio from the time of his youth. He was employed by a Hobart firm in the mid-1920's to service radios and when the firm closed down, he moved to Launceston and went into business on his own.

His ability was recognised by the broadcasting stations and after working at 7HT Hobart and 7QT Queenstown as a technician, he accepted the position of chief engineer at TLA.

Ern was an active 144 Mc. man in Launceston and was fairly active on 40 metre phone. He had been assisting Val Sydes in the building of a small seaside house at Coles Bay on the East Coast of Tasmania and in his spare time was building an 80/60 metre portable transmitter-receiver to take with him to this DX paradise, miles away from man-made noise.

Only the Friday before the tragedy, VK7KW was discussing with him the R.D. Contest in which he intended to take an active interest.

T-TYPE VALVE SOCKETS

Those ex-R.N. or R.A.F. 9-pin valve sockets for EF50s and the like—they can be troublesome when stripped from ex-Service gear. Many of these sockets had been sprayed or bushied by people with a yen for "tropic proofing or bust." The result was that "goo" got all over the contact springs as well as the insulation material. Poor, or lack of contact and seized springs resulted from such treatment. The cure is to soak such sockets in lacquer thinner or Acetone, then dry out for a day or so, and all will be well, after scraping contact surfaces clean.—VK2NO.

AMATEUR CALL SIGNS

ADDITIONS, ALTERATIONS AND DELETIONS FOR MONTH OF MAY, 1951

ADDITIONS
UK—
 2LR—L. J. Turner, McDougall St., Kynog.
 2APF—F. D. A. H. Hurley, Unit 279D, Housing Estate, Herne Bay.
 2ARJ—A. C. Simmonds, 16 Burraneer Bay Rd., Cronulla.
 2ARM—R. J. Miller, 8 Tillock St., Haberfield.

Victoria
 3VU—R. C. Smith, Exdale St., Blackburn.
 3APL—S. L. Skinner, 8 Fontaine St., Pascoe Vale
 3ANQ—N. F. Wilson, 155 Bridge St., Bonalla.
 3ANL—E. L. Lawrence, 2 Hall St., W. Brunswick.
 3AVQ—N. R. Matti, 40 Albany Cr., Surrey Hills

Queensland
 4QG—R. J. Mitchell, Kell Mount Rd., Woombye
 4KJ—W. E. C. Sawyer, Coastal Radio Station VII, Thursday Island.

South Australia
 5MG—W. C. Caldwell (Cpl.), Milpo, Darwin, N.T.
 5TJ—T. J. Lally, P.O. Box 99, Clare, S.A.
 5TP—A. E. Peppercorn, 6 Leslie Av., Blair Athol

Western Australia
 6BR—B. R. E. Field, Alexander St., St. Perth.
Tasmania
 7YH—F. W. Hand, George Town.
 7OK—M. A. O'Keefe, Hut Ct, Bronte Park.

Territories
 1BS—W. J. Storey, Macquarie Island.
 BCP—Rev. C. J. Patrick, Papital, Manus.
 6WG—W. C. Gee, Administration Senior Officers Mess, Port Moresby.

ALTERATIONS
New South Wales
 2KZ—"Vaulcus," Hoxton Park Rd., Liverpool.

2EP—Lot 31, New Barragay Rd., Avalon Beach.
 2TL—5 Shadforth St., Motman.
 2YH—188 Stillman St., Penrith.
 2EM—42 New St., Auburn.
 2AG—13 New St., Auburn.
 2AGY—Compton St., North Lambton.
 2AKK—5 Euston Ave., West Ryde.
 2ALD—2 David Avenue, Carlingford.
 2ANR—"Kia Ora," Yass Rd., R.M.B.300, Canberra, A.C.T.

2ANT—Academy Rd., Forest Hill, via Wegga; postal address: Depart. of Civil Aviation, Box 1145, P.O. Box, Wega.
 2APM—Lot 67, Raleigh Ave., Carlingford.
 2AVS—34 Mount Ave., Brighton-Le-Sands.
 2AVT—Miller Rd., Villawood, Sydney.

Victoria
 3CT—High Street, Warrnambool.
 3JM—160 Ascot Vale Rd., Ascot Vale.
 3OE—35 Barcelona St.
 3OQ—Theogen Cr., 53 Esplanade, Brighton, S.S.

3OG—1333a Gregory St., Ballarat.
 3RE—Flat 3, 528 Toorak Rd., South Yarra.
 3US—Koonwarra Rd., Leongatha South (Postal address: P. O. Box 128, Leongatha).

3VF—34 Vernon St., Croydon.
 3VL—Koonwarra Rd., Leongatha South (Postal address: P. O. Box 128, Leongatha).

3VY—Eilemere Pde., Glenelg.
 3XV—26 Elora Rd., South Oakleigh.
 3ZO—4 Parliament Place, East Melbourne.
 3ADA—18 Buckley St., Essendon.
 3APF—45 Marley St., Sale.
 3ATL—Rear of Congregational Church, Gheringhap St., Geelong.

Queensland
 4AJ—214 Boundary Rd., West End, Brisbane.
 4FG—Marina Parade, Ingham.
 4MC—Olive Street, Killarney.
 4PF—Cooninya Kp Line.
 4WI—C/o W. O. Dodd, 26 Paramount Ter., Morningside, Brisbane.

South Australia
 5BM—23 Miller St., North Unley.
 5NP—13 Grandview Gr., Toorak Gardens.

Western Australia
 6OU—2 St. George's Terrace, Perth.
 6LA—20 Canning Pde., Canning Bridge, W.A.
 6RG—Parramatta Rd., Doubleview.

Tasmania
 7SW—25 Bedford St., New Town.

DELETIONS
New South Wales
 2KX—Cancelled.
 2VJ—Cancelled, now operating under VK5TP.
 2SZ—Cancelled.
 2GS—Cancelled.
 2AAS—Cancelled; now operating under VK1BS.
 2AGJ—Cancelled; now operating under VK4GQ.
 2AJB—Cancelled; now operating under VK2LE.
 2AQM—Cancelled.
 2ARD—Cancelled.

Victoria
 3HQ—Cancelled.
 3HC—Cancelled.
 3IZ—Cancelled.
 3KD—Cancelled.
 3RA—Cancelled.
 3YH—Cancelled; now operating under VK7YH.
 3ALN—Cancelled.
 3AQJ—Cancelled.

Queensland
 4PG—Cancelled.
South Australia
 5IR—Cancelled.

Western Australia
 6DD—Cancelled.
 6NW—Cancelled; now operating under VK3AG.
 6RZ—Cancelled.

Tasmania
 7AN—Cancelled; now operating under VK6WG.
Territories
 8FP—Cancelled.
 8MR—Cancelled.

FOR Low Drift Crystals AMATEUR BANDS

ACCURACY 0.02% OF
STATED FREQUENCY

3.5 Mc. and 7 Mc.

Unmounted £2 0 0

Mounted £2 10 0

12.5 and 14 Mc. Fundamental
Crystals, "Low Drift,"
Mounted only, £5.

Spot Frequency Crystals
Prices on Application.

Regrinds £1 0 0

THESE PRICES DO NOT
INCLUDE SALES TAX.

MAXWELL HOWDEN
 15 CLAREMONT CRES.,
 CANTERBURY, E.7,
 VICTORIA

Results of the 1951 National Field Day Contest

Despite the publicity given to this Contest the number of logs received was a very poor average of the Amateurs who, from time to time, express their interest in field work. Admittedly it was a hot summer this year—which may account for the low participation figures—but it is astounding that so little interest is evidenced in what should seemingly be a most attractive out-door Ham event.

However, it is at least pleasing to note a little more interest than for the 1950 Contest, and if this can be taken as a guide, it would seem that the National Field Day Contest may yet be a real "big time" show looked forward to year after year by hundreds instead of such a minority.

SCORES

Open Section

Call	Conts.	Bands	Contact	Bonus	Pts.	Total
VK3ADB/2	44	3	176	150	326	
VK6WI/P	39	5	137	150	287	
VK7SR/4	47	2	214	100	314	
VK2AMV/P/4	15	3	78	100	178	
VK7WI/P/2	19	2	86	25	115	
VK5JG/2	2	1	20	—	20	

C.W. Section

Call	Conts.	Bands	Contact	Bonus	Pts.	Total
VK4AP/P	37	2	173	175	348	
VK3ADB/2	26	3	131	150	281	
VK6HC/2	33	3	120	150	270	
VK2AHA/5	30	2	116	125	241	
VK7SR/3	19	2	91	75	166	

Phone Section

Call	Contact Bonus				Total
	Conts.	Bands	Pts.	Pts.	
VK3LN/2	47	2	154	25	179
VK3ALQ/3	41	3	140	25	165
VK4KS/3	55	3	123	25	148
VK7SR/4	26	2	123	25	148
VK4RL	25	2	89	50	139
VK7RX/5	43	2	133	—	133
VK3ADB/2	23	3	89	50	119

Check logs were received from VK5RR and VK5BJ, and Eric Trebilcock BERS 195.

The description of equipment used by each competitor makes very interesting reading, but unfortunately it is impossible to print the details here. The equipment used by the winner in each section is as follows:—

Open—VK3ADB took the honours in this section, and is also to be commended on gaining second place in the c.w. section. VK3ADB is the portable call of J. G. Dufaur, VK3ADP, who was ably assisted by J. R. Richardson, VK3ZP.

The portable station was located at the top of Mt. Eliza—approximately five miles from Frankston—and used a Type 3 Mk. II on the 20, 40 and 80 metre bands, plate modulated with an external home-built modulator using a 6V7 in the output stage supplying 16 watts of audio power from a carbon microphone.

The power input to the final with the antenna connected was 30-25 watts. Antennae consisted of three long wire systems erected between trees, varying from 150 to 400 ft. in length, and 25 to 30 ft. in height.

Vibrator power supplies powered all the equipment, including a modified Hallicrafter SX25 Rx, powered from 6 volt accumulators.

Phone: VK3LN, Len Moncur, assisted by O. Dennis, VK7ZP, carried off the first place in the Phone Section with a Type 3 Mk. II, using 8 watts input feeding alternatively two 40 metre half wave dipoles and a 20 metre half wave dipole. Their location was Kailor.

C.W.: VK4AP, A. Gullford, did a magnificent job of "breaking the tape" in the c.w. section with more bonus points than contact points. He was assisted with the erection of his station by a New Australian, Ernie Ballantine, who is also an R.S.G.B. member.

A Bendix 321-D was used as a v.t.o. followed by 6SH7, 6SH7, 6V5 and 607 final running 15-18 watts with the antenna connected. The location was Loria—almost on the sea front about 15 miles from Brisbane.

A quite terrific supply of h.d. 6 volt and 12 volt batteries, 45 volt h.d. battery banks, 32 volt d.c. to 250 volt a.c. inverter, together with a 23 volt charger loaned by the courtesy of a local firm powered the rig into a 120 ft. single wire antenna and fed with tuned feeders.

As an indication of what can be done, VK4AP logged V88, ZL2, SM5, W1, KH8, LU8 amongst other DX. A very fine effort for 37 contacts on two bands.

VK4KS and VK7SR ran abreast for third place in the phone section and each will receive a certificate.

Let's hope that next year bigger and better logs will be sent in. And don't forget, chaps, send in your log, however small the number of contacts.

— . . . —

HINT ON MEASURING AERIAL

Next time you borrow a tape to measure the wire for an antenna, drive several pegs in the ground—survey peg fashion—known distances apart, say 33 feet and 66 feet. This will obviate the necessity for borrowing the tape on future occasions as you will now have convenient datum points from which to measure the lengths of wire commonly used in Amateur band antennae.

Setting a New Standard in Communication Receivers—

The "Commander" Double Superhet.

Free Data Sheets on Request

Interstate Representatives: West. Aust.—Messrs. Atkins (W.A.) Ltd., 894 Hay St., Perth. Queensland—Messrs. A. E. Harrold, 123-5 Charlotte St., Brisbane. In other States direct your inquiries to firms handling Bright Star Crystals.



Valves, new, boxed, RCA 834s, £1/8/- each.

6C4s, 12/- each.

Limited number of the following Taylor Tubes: TZ20s, £2/10/- each; TB35s, £6/10/- each.

Transmitters altered for Bush Fire and Fishing Boat Work.

CRYSTALS, as illustrated, 40 or 80 mx., AT or BT cut. Accuracy 0.02% of your specified frequency, £2/12/6 each.

20 metre Zero Drift, £5 each.

Large, unmounted, 40 or 80 metre, £2 each.

Special and Commercial Crystals—Prices on application. Crystals re-ground, £1 each.

BRIGHT STAR CRYSTALS may be obtained from the following Interstate firms: Messrs. A. E. Harrold, 123 Charlotte St., Brisbane; A. G. Healing Ltd., 151 Pirie St., Adelaide; Atkins (W.A.) Ltd., 894 Hay St., Perth; Lawrence & Hanson Electrical Pty. Ltd., 120 Collins St., Hobart; Collins Radio, 409 Lonsdale St., Melbourne; Prices Radio, 5-6 Angel Place, Sydney.

DC11 TYPE CRYSTAL HOLDERS WANTED. ANY QUANTITY.

Screw-type Neutralising Condensers (National type), suits all triode tubes, Polystyrene insulation, 19/6 ea.

Prompt delivery on all Country and Interstate Orders.

Satisfaction Guaranteed.

BRIGHT STAR RADIO

1839 LOWER MALVERN ROAD, GLEN IRIS, VIC. Phone: UL 5510.



Commonwealth Jubilee VK-ZL DX Contest

CONTEST RULES—OCTOBER, 1951

On the 1st January, 1901, Federation was proclaimed in Australia and this meant the conversion of Colonies into States and these States became part of a new Nation. This year, Australia is celebrating the Jubilee of this memorable occasion by many and varied ceremonies in all parts of the Commonwealth and the VK-ZL DX Contest will not be the least important event by any means.

The Commonwealth Government has honoured the Wireless Institute of Australia by the recognition of one of the World's leading Radio Contests by making available a monetary grant and it is the intention of the Institute to show its appreciation of this allocation by making the Jubilee VK-ZL DX Contest the best Contest to date and your co-operation and assistance is sought.

You can make this Contest a very successful one by entering either the c.w. or phone sections, or for that matter both, and by sending in your log irrespective of the number of contacts you have had.

The Contest is divided into three Sections, viz.: c.w., phone, and receiving. The c.w. section will commence at 0001 G.M.T., Saturday, 13th October, and will conclude at 1200 G.M.T., Sunday, 14th October. The phone section will commence 0001 G.M.T., Saturday, 20th October, and conclude at 1200 G.M.T., Sunday, 21st October. The receiving section covers both c.w. and telephony.

You may enter the open section, viz.: all bands in either phone or c.w., or any one band in either section. The contest is open to all sections entered. Additional log sheets may be obtained from your Divisional Secretary.

Serial numbers must be exchanged during the Contest as follows—The first three figures will be the RST in the c.w. section followed by serial number in the phone section. The first number between 001 and 100 for the first contact and increasing in value by one for each successive contact. In the phone section, the first two figures will be the RS report and then as in the c.w. section.

The method of scoring is quite simple. One point is scored for each contact and the final score is obtained by multiplying the number of contacts by the number of countries or VK-ZL Districts worked on each band.

Logs must show in this order: Date, time (G.M.T.), band, call of station worked, serial number sent and received, and new country or VK-ZL District worked.

A cup will go to the highest scoring station in both Australia and New Zealand, whilst a plaque or medalion will go to the highest scoring stations in each State or Territory and District of New Zealand. Certificates will be presented to other place getters. This procedure will be adopted for all countries outside Australia. Each W District and British Isles Prefix will be regarded as separate countries. The Contest Committee reserve the right to decide the type and number of prizes or Certificates to be allocated. This will depend entirely upon the number of logs received from any particular country.

The New Zealand Association of Radio Transmitters are co-operating with the Wireless Institute of Australia in conducting this Contest.

Overseas logs should be received by the Contest Committee, Box 1134, G.P.O., Sydney, Australia, not later than 31st January, 1952. VK-ZL logs should reach the Contest Committee not later than 30th November, 1951. Every contestant will receive a copy of the results, together with a QSL acknowledging his

participation in this Jubilee DX Contest. Remember, please send your log in irrespective of the number of contacts you have made.

Here are the Rules in detail—

Dates: (a) c.w. operation—second week-end in October, from 0001 G.M.T., Saturday, 13th October, to 1200 G.M.T., Sunday, 14th October. (b) Phone operation—third week-end in October, from 0001 G.M.T., Saturday, 20th October, to 1200 G.M.T., Sunday, 21st October.

Duration: (a) VK and ZL stations for contest purposes will limit their period of operation to any consecutive 24-hour period on each week-end within the times given above. Once an operator commences operation, the operator will not exceed 24 hours of operation reckoned from each commencing time.

(b) In other countries, stations may contact VK and ZL stations at any time within the periods shown above.

TRANSMITTING

1. There shall be three main sections to the Contest: (a) Transmitting c.w.; (b) Transmitting phone; (c) Receiving (phone and c.w.).

2. Contestants may compete in the open events (i.e. all bands) or on one or more individual bands by submitting a log for each individual band.

3. The Contest is open to all licensed transmitting Amateurs and receiving stations in any part of the world. No prior entry need be made in any mobile station (if outside Australia and New Zealand territorial waters) may count as contacts, but not as multipliers.

4. C.w. will be used for the first week-end of the Contest and phone for the second week-end. Stations entering for both c.w. and phone sections must submit separate logs for both phone and c.w.

5. All Amateur frequency bands may be used. Cross-band operation will not be permitted.

6. Only one contact per band is permitted with any one station (for contest purposes).

7. Only one licensed Amateur is permitted to operate any one station under the owner's call sign. Should two or more operators operate any particular station, each will be considered a competitor and must submit a separate log under his own call sign.

8. Serial numbers to be exchanged during the Contest will be as follows—

(a) For c.w., the first three figures will be the RST (telephony) report, followed by the serial number of the contact commencing with any number between 001 and 100 for the first contact and increasing in value by one (1) for each successive contact. Any contestant reaches 999 he will then start 001 and continue 002, 003, 004, etc.

(b) For phone, the first two figures will be the RS (telephony) report, followed by the serial of the contact commencing with any number between 001 and 100 for the first contact and increasing in value by one (1) for each successive contact—five figures in all. If any contestant reaches 999 he will then start 001 and continue 002, 003, 004, etc.

9. Scoring: One point will be scored for each contact on a specific band with any overseas country (VK-ZL District for overseas stations). The final score will be obtained by multiplying the total contacts on each band by the total number of countries worked on each band.

The A.R.R.L. Official Countries List will be used except that in the case of the U.S.A., each call area shall be considered a country.

VK-ZL Districts are VK1, 2, 3, 4, 5, 6, 7, 9, and ZL1, 2, 3, 4.

10. Logs: (a) Logs must show in this order—Date, time (G.M.T.), band, call of station worked, serial number sent, serial number received, and new country or VK-ZL District worked.

(b) A separate log must be submitted for each band for which an individual entry is intended. For the open section an all-band log is required.

Each log must show a summary as follows—The number of effective contacts, multiplier obtained and total points, together with a statement of call signs, name and address, phone or c.w., single band or all-band operation.

Each page of the log must be numbered and signed by the contestant.

The ruling of the Contest Committee of the W.I.A. will be final in the event of any dispute.

11. Awards: A cup will be awarded to the highest scoring stations in the open section in Australia and New Zealand. A medalion, plaque or certificate will go to the highest scoring stations outside Australia and New Zealand. The Committee reserve the right to determine the type and number of prizes to be allocated. This will depend entirely upon the number of logs received from any particular country. Every entrant will receive a copy of the final scores, together with a QSL acknowledging his participation.

12. Entries from overseas stations should be endorsed "VK-ZL Contest," and should reach the Chairman, Contest Committee, Box 1134, G.P.O., Sydney, Australia, not later than 31st January, 1952. VK-ZL logs should reach the Contest Committee not later than 30th November, 1951.

RECEIVING SECTION

1. The rules for the receiving section are the same as for the transmitting section, but it is open to all members of any shortwave listeners' society in the world. No transmitting station is permitted to enter for the receiving section.

2. The Contest times and the logging of stations once on each band per week-end are as for the transmitting section. Logs will be in the same form as for the transmitting section.

3. To count for points, the call sign of the station being called, the strength and tone of the called station, together with the serial numbers sent by the calling station must be entered in the log. One point may be claimed for each entry complying with the above details.

4. It is not sufficient to log a station calling "CQ Contest."

5. VK receiving stations may log overseas stations and ZL stations. ZL receiving stations may log overseas stations and VK stations. Overseas receiving stations may log only VK and ZL stations.

6. Awards to be determined by the Contest Committee.

COPY OF LOG SHEET

Section C.W. Open .. Band .. Call
Phone Open .. Band ..

Australia's Jubilee Celebrations
Commonwealth Jubilee VK-ZL DX Cont. 1951
Organised by the Wireless Institute of Australia in association with the New Zealand Association of Radio Transmitters on behalf of Commonwealth of Australia Jubilee Committee

Band	VK-ZL Dist. Countries	Contacts	Points
3.5 Mc.			
7 Mc.			
14 Mc.			
21 Mc.			
28 Mc.			
Total			
Name			
Address			

I hereby declare that my station was operated under the rules and spirit of this Contest and I agree that the decision of the Contest Committee shall be final and binding in all matters pertaining to the Contest.

Date .. Signed ..
Time Band Worked Sent Recd. District Points

AUGUST, 1951

PHONE

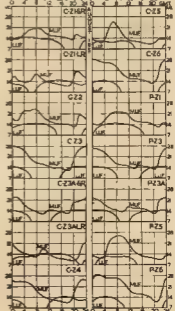
CW

OPEN

USE OF CHARTS

The Prediction Service welcomes comments on the accuracy of its predictions. These should be forwarded through the WIA.

IONOSPHERIC PREDICTIONS FOR THE AMATEUR BANDS



FEDERAL, QSL, and DIVISIONAL NOTES

Federal President: G. GLOVER (VK3AG); Federal Secretary: G. M. HULL (VK3SE); Box 211W, G.P.O., Melbourne.

NEW SOUTH WALES

President: Hal Nye, VK2JG
Secretary: David H. Duff (VK2KO), Box 1736
G.P.O., Sydney

Meeting Night: Fourth Friday of each month at Science House, Corner Gloucester and Essex Sts., Sydney

Divisional Sub-Editor: Don B. Knack, VK3NO, 43 Yanko Avenue, Waverley, Sydney.

Zone Correspondents: North Coast and Tablelands: J. M. Retallick, VK3XQ, Raleigh; Newcastle, Ron McD Stuart, VK3ASJ, 85 Dunbar St., Stockton, Coillies and Laidlaw, Harry Hawkins, VK3YJ, 27 Comfort Ave., Cessnock; Western, W. H. Stitt, VK3WH, Camblow, Forster, South Coast and Shakers, Roy Raynor, VK3DO, 41 Pettit St., Yass; Eastern Shakers, Don Knack, VK3NO, 43 Yanko Ave., Waverley, Northern Shakers: Harry Powell, VK3AE, Russell Ave., Wetheroo, St. George; Chas. Coyle, VK3YK.

VICTORIA

President: G. S. C. Semmens, VK3GS.
Secretary: C. Dyer (VK3DY), 19 Collington Ave., Brighton, VICA 629.

Administrative Secretary: Mrs. S. May, Law Court Chambers, 191 Queen St., Melbourne.

Meeting Night: First Wednesday of each month at the Radio School, Melb. Technical College.

Zone Correspondents: Western: C. K. Waring, VK3YW, 12 Skenes St., Stawell, South Western: K. O'Rourke, VK3AKB, Milligrew, Westmore; North Eastern: T. K. Tennant, c/o Victory Theatre, Launceston; North East: J. Pollock, VK3GZ, 101 Lemon Ave., Mildura; Eastern: H. O. Kellas, VK3AHK, Tasmans: North Western: C. Case, VK3ACE, Cumnings Ave., Birchip.

FEDERAL

FEDERAL CONSTITUTION ALTERATIONS
Federal Executive, on behalf of the Federal Council of the W.I.A., hereby gives notice that it is intended to alter the Federal Constitution of the W.I.A. as amended 1947.

Section 18 as follows: (a) Deleting the words "the Headquarters" in line three and four, and inserting the word "any" in line thereof; and (b) deleting the words "the Headquarters" in line 1, and inserting the word "appropriate" in line 1.

SLOW MORSE TRANSMISSIONS

The following transmissions from the official W.I.A. stations are given on 3.554 Mc. on the days and times shown below:-

Sunday-VK3WJ, 2030 to 2100 hours E.A.S.T.
Monday-VK3WJ, 2030 to 2100 hours E.A.S.T.
Tuesday-VK3WJ, 1930 to 2000 hours E.A.S.T.
Wednesday-VK3WJ, not operating at present.
Thursday-VK3WJ, 1930 to 2000 hours E.A.S.T.
Friday-VK3WJ, 2030 to 2100 hours E.A.S.T.

INTERFERENCE TO OFFICIAL BROADCASTS

With monotonous regularity, interference on the official W.I. broadcast channel frequency of 7.1 Mc. will persist despite repeated requests that this channel be kept clear on Sunday mornings. Chaps, even if YOU are not interested in W.I.A. activities, please give those who ARE interested a chance to hear.

On one or two occasions recently, W.I. stations themselves have remained on the channel after cessation of the Divisional broadcast, thus interfering with the broadcast from the next official station on the schedule. When your Division has concluded its broadcast, PLEASE be sure to change frequency to the Intra-State channel in the Eastern States particularly, the broadcast is very often stronger in adjacent States than it is in the State in which the programme originates.

REMEMBRANCE DAY CONTEST

Just a reminder that the Remembrance Day Contest is scheduled for the week-end, 11th and 12th August, and contrary to rule one (1) as published in the July issue of "A.R." Contest is twenty-four hours' duration for any participant.

WI BROADCASTS

All Amateurs are urged to keep these frequencies clear during, and for a period of 15 minutes after, the official Broadcasts.

VK3WJ: Sundays, 1100 hours EST, 7198 Kc. and 3000 hours EST 30 and 144 Mc. No frequency checks available from VK3WJ. Intra-State working frequency, 719 Kc.

VK3WJ: Sundays, 1130 hours EST, simultaneously on 3205 and 7198 Kc. and re-broadcast on 30 and 144 Mc. bands. Intra-State working frequency 7198 Kc. Individual frequency checks of Amateur Stations given when VK3WJ is on the air.

VK4WJ: Sundays, 0900 hours EST, simultaneously on 3780 Kc., 7198 Kc., 14342 Kc., 84.4 Mc and 144.138 Mc. Frequency checks are given two nights weekly, and the times are announced during Sunday broadcasts. 7085 Kc. channel is used from 1000 to 1030 hours each Sunday as VK4 query service to VK4WJ.

VK5WJ: Sundays, 1000 hours EAST, on 7198 Kc. Frequency checks are given by VK5WJ by arrangements only on the V and 14 Mc. bands.

VK6WJ: Sundays, 0930 hours WEST, on 7198 Kc. No frequency checks available.

VK7WJ: Sundays, at 1000 hours EST, on 7198 Kc. and 144.1 Mc. No frequency checks are available.

SILENT KEY

It is with deep regret that we record the passing of—

VK4HF—Hal Fitzallen, June, 1951.

VK7MC—Ern Cooper, July, 1951.

Please take an interest in this most worthy Contest and send in your log even if you only have the bare minimum of six contacts required. It all helps the Contest Committee to check the scores and adds materially to the State score in competing for the trophy.

Federal Executive have printed special Contest Log Sheets which have already been forwarded to each Division for circulation to members. Divisions have been asked to see that a supply is forwarded to each Zone for further circulation. It is particularly requested that every participant forward his Log on the approved Log Sheet; if your friends can't get to the various centres for them you can see that they obtain some.

There is space for 40 contacts on each sheet, so don't take more than you and/or your friends require.

The Log Sheets have been supplied on a per capita basis; if any Division has too many please make arrangements to forward the surplus to a Division or zone requiring more than anticipated. Thank you gentlemen—and may the best State win!

W.I.A. ACTIVITIES CALENDAR

August 11-13: Remembrance Day Contest.
October 13-14: VK-XL Jubilee Contest (C.W. Section).
October 28-21: VK-XL Jubilee Contest (Phone Section).

QUEENSLAND

President: J. H. Farrell, VK4WJ
Secretary: J. P. Pickles, VK4UP, Box 5831, G.P.O., Brisbane.

Meeting Night: Third Friday in each month at the L.R.L. Rooms, Wickham St., Valley.

Divisional Sub-Editor: Clive J. Cooke, VK4CO, Kuran Street, Chermside, Brisbane.

SOUTH AUSTRALIA

President: E. A. Barber, VK3MD.
Secretary: G. M. Bowen, VK3XU, Box 1934E, G.P.O., Adelaide.

Meeting Night: Second Tuesday of each month at 17 Waymouth St., Adelaide.

Divisional Sub-Editor: W. W. Parsons, VK3PE, 19 Victoria Avenue, Ross Park.

TASMANIA

President: J. Campbell-Watson, VK3JW.
Secretary: K. B. Lang, Box N102, G.P.O., Perth, W.A.

Meeting Place: Padbury House, Cr. St. George's Tree and King St., Perth.

Meeting Night: Third Tuesday of each month. Divisional Sub-Editor: Alec A. Smith, VK3AS, 70 Weston St., Carlisle, Western Australia.

TASMANIA

President: R. O'May, VK3OM.
Secretary: L. W. Edwards, VK3LE, Box 371B, G.P.O., Hobart.

Meeting Night: First Wednesday of each month at the Photographic Society's Rooms, 363 Liverpool St., Hobart.

Divisional Sub-Editor: S. Exzell, VK3JL, 77 Mollie St., Hobart, Tasmania.

North Zone Correspondent: C. A. Cullinan, VK3XW, 11 Montrose Place, Launceston.

GOOD NEWS

Members will be pleased to know that Gordon Weynton, VK3KU, Federal Vice-President, has recovered from severe injuries received some months ago when he was involved in a car accident.

Gordon has been heard back on the air in VK3 and is surely and steadily winning his way back to health and strength. We members of Federal Executive who have been more closely associated with Gordon know how seriously injured he was and the tremendous will to live that no doubt pulled him through.

Every Amateur will wish Gordon the best 73 and a rapid return to his normal daily duties.

TRAVELLING ABROAD

J. M. Dobbins, of the P.M.G.'s Department, and Gen. Ldr. Ron Hargreaves (VK3AFR), have both left Australia for duties abroad in their respective spheres of duty. Federal Executive have given these gentlemen a letter of introduction to Amateur Societies abroad, should the opportunity present itself for them to attend overseas Societies' conventions or meetings, and they have expressed their pleasure and willingness to make personal contact with our overseas friends and bring back to us their impressions of Amateur Radio in other countries. We wish them a pleasant journey and a safe return to their native land.

FREQUENCY ALLOCATIONS

The following is a list of the bands available for use by the Amateur Service in Australia, followed by the types of emission allowed on these bands.

3.5 to 3.8 Mc.	A-1, 3, 3a, 6F3.
7.0 to 7.2 Mc.	A-1, 3, 3a, 6F3.
14.0 to 14.4 Mc.	A-1, 3, 3a, 6F3.
20.00 to 21.25 Mc.	A-1, 3, 3a, 6F3.
28.0 to 30.0 Mc.	A-1, 3, 3a, 6F3.
3.5 to 3.8 Mc.	A-1, 2, 3, F.M.
14.0 Mc.	3a, 6F3, F.M., Pulse.
20.00 to 21.25 Mc.	A-0, 1, 2, 3, F.M., Pulse.
28.0 to 30.0 Mc.	A-0, 1, 2, 3, F.M., Pulse.
14.0 to 14.4 Mc.	A-0, 1, 2, 3, F.M., Pulse.
20.00 to 21.25 Mc.	A-0, 1, 2, 3, F.M., Pulse.
28.0 to 30.0 Mc.	A-0, 1, 2, 3, F.M., Pulse.
3000 Mc. and higher—	A-0, 1, 2, 3, F.M., Pulse.

NEW SOUTH WALES

EASTERN AND SOUTHERN SUBURBS

Ern 2ABE says that he hasn't been on the air very much of late because of home jobs and getting ready for 144 Mc. with Andy 2AX #88ing him on in the latter direction. A welcome is extended to Joe 2AYH who is a new Amateur in the Beccal area. He started up on 20 and is now on 40 with a nice signal. All 2CE pops up new and again on 40 to discuss 144 Mc. with the Eastern Suburbs boys. Dave 2AYE is mostly occupied on 40, but will be on the other bands as soon as he gets the shack renovated. After talking about it for some time in pre-war days, Col 2ABD has broken out on v.h.f., and is on 6 metres. He talks of his doings there with 2WE and 2ACU. 2AIG Ray now operating on 144 Mc. Andy 2AX finds his location for 144 Mc. poor. Your Sub-Editor feels out in the cold about v.h.f.s. these days, after having "lived" on 'em for long pre-war years, and is hoping to find time to brunk out any tick of the clock. Bruce 2AZZ active on 40 with nice phone signal, is yearning to get to his new suburb location.

George 2AHJ also on 40 phone with a n.b.f.m. signal, using a rectenode modulator set up. Ivan 2TV is heard at intervals on 60 phone, usually at the week ends. A gale annulled a dual port section of 2NO's mast. Radio dealer Horrie Oakes had had luck in the Morse exam, recently for his ticket. Keep plodding OM, you'll make it in the end and others of mature age have done. Latest about Bill 2ZL is that he is likely to give c.w. away for a while and to break out on phone. Ted 2AHQ not heard for some time, recently had an arrival, a 4th harmonic. Jack 2EZ is heard at intervals on 50 phone and Jack 2FJ is said to be completing a new 20 metre beam for use at his new location somewhere up the coast. Most constant VKZ from a southerly direction heard on 80 in the Sydney area seem to be Alan 2ACC, of Heathcote. His phone signal from his 80 metre folded dipole is about the same strength by day and by night, ample indication that the boys really should make daylight use of 80 for contacts covering up to 300 miles or so. Heard frequently on 40 phone these days is the old "Bugar Apple", Wal 2SA. 2TO is heard regular and working the c.w. DX on 30; don't recall hearing him on any other band. Acknowledgment is made to 2ABE and 2AYE for assistance with news items.

NORTH COAST AND TABLELANDS ZONE

Clive 2AGM has staged a come back and working 80. 2LH working 20, 40 and 80. Doc's new 80 antenna has made a big difference. 2ASO building new v.l.s. 2ADK too busy for much hamming, but works 2LEI nightly on 5. 2LR and 2AUB active on 40 and 80. 2PA active on all bands during the week-ends only; Peter reports good results with his long wire antenna 90 feet high at one end. 2SBI active on 20, using G8PO. 2AWS Len will soon be on the air again and has two 65 feet electric light poles to erect for masts. 2AEY busy hunting gold dust. 2AFIA building 80 and 144 gear. 2JC completed new 4 element beam and 50 Mc. gear to work Rod 2ACU (Conambee) who has also built 6 and 144 gear—the country gang will soon be on the v.h.f.s. 2DK not very active due to shearing.

No word from any of the Inverell gang, what cooks boys? Sid 2APS not very active of late. 2OE not very active, no news on the Oranjan gang. 2ARY putting out good phone, a new antenna too. 2CJ works plenty of 2Ls on 40, it is pleasing to report that 2JK's health is again 100 per cent. 2ADN working plenty of DX on 20. 2ARJ Jim too busy for Ham Radio these days. 2DK working 20 only. 2APB Ken Brandford, a new Ham at Coff's, active on 20 and 40. 2AHK, late of Sydney, now on from Dorrigo 2,600 feet above sea level; Errol hopes to put up a vee beam and to get going on 144 Mc.

COALFIELDS AND LAKES

Again not much to report and bands generally quiet. The winter seems to frighten most of the gang from their shack. Ken 2ANU now using crystal on 144, very nice signal too. Has had the XYL in hospital, all hope she is well again. Geoff 2TV not heard so much, on 6 mainly and playing around with grid dip oec. Nothing to report from 2EZ, 2YO or 2PE. Bob 2TV sticking to 38 Mc.; had a lucky escape from a serious eye injury in a recent gale, everything OK again. Another Bob 2ZK doing his best to encourage 80 to work, a bit crazy there but OK on the other bands. Bob has f.b. phone these days. Max 2KE another reliable 28 Mc. phone and despite adverse conditions still getting good contacts. Jack 2ADT mainly works 2BZ cross band 60-144, looks as if he will have to talk fast to keep 2BZ interested, the latter not so pleased with his new location. 2ADT also talks grid dip oec. and has made a multi-tester, also doing some rock grinding.

From near Wyong Chas 2ARV is active on 40 phone, getting out well too. Major 2RU is the only active station in Gosford, on 6 mainly but can be heard working cross band 60-144, with the Woy Woy boys. Both Cec 2KR and John 2GA are going on 144 and 80, but not received well at the writer's QTH, but 2RU is satisfactory. 2YL playing with 144 final, airing a few antennas. Can't get yes or no to my hearing of W8FTJ on 144, my logging checks OK, he was on 144, but was working cross band to 28 Mc. and the W8 thinks a stray signal got into my 144 Mc. Tx. I am hoping 2HO's occupation of a W1 on 144 Mc. receives a better fate.

HUNTER BRANCH

Harold 2AHA who has done yeoman service as Zone Correspondent for the Branch since its inception, has now relinquished the position. All are most grateful for the wonderful work he has done. 2ASJ cannot hope to emulate his efforts, but will do my very best. Harold is giving me a lot of help, and I would like to appeal to all Hams in this Branch to let us know what they are building or wrecking so that we can pass the news on to others.

In accordance with the decision made at the May meeting, the August meeting of the Hunter Branch will be held in Maitland. This will provide an opportunity for members further up the Hunter to attend and take an active part in proceedings. It is hoped that Hams in the area who are not yet members will join up, and we are also hoping many of the younger generation will become associates. The meeting will be held at the Technical College, Maitland, on Friday, 16th August, when we will be privileged to hear a lecture by the now famous Jim Reed 2JR. This will be something new in lecturing technique, the subject being "Stabilised Oscillators." Newcastle members who have no transport, and wish to go to Maitland, please contact our Secretary 2SF (Tel. B 1874) and he will endeavour to arrange this for you. We understand 2DZ is doing good work spreading the news around the Coalfields.

State President Wal Nye made time to call on 2AHA, 2EC, 2FF and 2KQ during a flying business trip up this way.

2XY had holidays in June, hence the bad weather. A gale wrecked 2MR's mast, but Edgar soon got going again, and hopes to be on 80 soon. 2AAM celebrating arrival of baby daughter, congrad. Merv 2WP QRT of late. Bill shifted QTH. EQ has new beam, Tom active

HAMS! HAMS! IT'S HERE!

195 EDITION

AMATEUR RADIO HANDBOOK

Published by American Radio Relay League.

PRICE 33/6 and 1/2 Post.

This Handbook is the standard manual of Amateur Radio Communication and contains the excellent standard of all previous editions.

PURCHASE NOW—DON'T DELAY.

Mail Orders by Return.

McGill's Authorised Newsagency

183-185 ELIZABETH STREET, MELBOURNE, C.I., VICTORIA.

(The G.P.O. is opposite)

Phones: M 1475-76-77

with dual purpose 40/30 antenna. Vice President ZAPF has moved to Williamson, and is absent on 10. SCW is working ZLE on 40 phone despite shift work, get QRT idea out of your head. Bill Doing a fine job for Branch in ZAXW who is coaching Associates, also doing good business on RA10s. ZPT started shack building, soon be on the air.

Thanks to ZDG for some Midland news. Keith is without mike, knocking over DX on 20 c.w., such as EK1, ZAG's. ZVG receiving help with new Rx from ZDG. Vic ZAKP has new shack in yard, says it's too cold this weather. ZANL is quiet lately, no doubt Joe will be at Midland meeting. 10 metres has been receiving attention from "Old Man of 80" ZKG; some nice DX was result says John. ZTV was injured during recent gale, is working KH88 again. Geoff ZVJ gone QHO on 40 and OSQD ZLZ. Hunter Branch members bill v.h.f. headlines recently, and we are proud of them. ZANU of Muscle Creek has contacted ZLY of Katoomba on 144 Mc. ever very bad terrain. ZAGD has new rig on 40, f1 signal. ZCN put in a lot of work on 20 metre beam, and watched it anxiously during the gale. ZAKA been portable from Kurrah and Spoor's Point; just about completed painting job. ZBZ is QTH at the moment. Dave promises to have a very long wire on 40 soon. After his success on 30 phone, ZAAI is revamping his RA10. Old timer ZAPF, has purchased a ZALD, looking for modulation soon. May be his neighbours, ZAGG and ZAES will get the urge again too.

ZLV active again shortly, not so QRL with "harmonic" now. ZKG has new Rx perking up to To Mc., and Ken is reading mail on 40. ZNX, ZVG and ZUV have been given front page publicity in Newcastle papers; they were photographed working on ship's radar installation—the first fitted here. ZII of these three on Ham bands though, 20 DX man ZTZ also absent of late. ZAWD is moving to "big smoke." ZAGY must still be QRL with new QTH, as all of Fred on air. Secretary ZEP soon be on 40 c.w. with xtal control and 807 final. ZIE I've pleased with new free meter and monitor, spending holidays making more. ZEL working ZLs on 40 phone and c.w. with only 5 watts. Bill also has rig on 20. Veteran ZAMH heard on 30, thanks to very hard work and patience of ZKV. All members extend sincere sympathy to Norm ZANA in the recent loss of his mother

SOUTH COAST AND SOUTHERN

Although our Sunday morning hook-up is slowly gaining in strength it does not seem to be producing the notes I had hoped to gather. However we have learned that Ross ZFN has been in hospital, understand that Ross is home again and on the way to good health. Geoff ZBQ has a new rig on 30—pair of Z364. Gordon ZOW now boasts of 63 countries on 20, his list for one month included ZYU, ZSAX, LZSZC, MIBBU, YBIO, HSIAS, LX, UQ, and GC just to mention a few. ZEU has been down in Melbourne on holidays and usually contacts VK3 stations on Sunday mornings; on xtal at the moment, but a v.f.o. is under way. Two zone stations not heard for a long time were contacted. ZBM at Dunrobin Military was not easily copied due to skip, but Jack ZOY had his usual nice signal but had no news of any interest. Don ZASD of the south coast is on 40 and is operating from Wollongong Club Tx.

According to ZEU there is a new Ham at Corowa but no news as to call etc. Visitors this month were LQ who passed through town on the way back from Sydney. Coc ZAL5 proudly displays new D104 mike of English origin; he is thinking of putting up a half wave for 30W. ZAMD, ZDY, ZAKY, ZBQ are all fairly reliable contacts each Sunday morning in the zone hook-up. Les ZPI also called on his way back from West Wyalong. David his Clapp and some dried food and some zero type condensers, so perhaps all is stable now. What with stock-taking and a spot of batch-ting, I have been hard put to get this batch together. The Tx will be dusted for the R.D. Contest, the only one I am interested in.

WESTERN ZONE

Red ZACU is practically going on 50—Tx complete 900s in final and 50 Mc converter is nearly finished. New Ham of Dubbo is ZAPE who used an AT5/AR5, the only comment "no monkey business." ZII also of Dubbo has a new hobby gliding—so far is only in the building stage, not air borne yet. Very busy trying to get into the new home before Xmas. Freddie ZVZ far too QRL for Ham Radio. Tom ZAMR still the most active Amateur from Dubbo heard often. ZACT Bill is doing good work with his long wire on 14 Mc. ZSS, of Lawson, quite active on 20. Joe ZANCY of Forbes, has been bitten by the carpentry bug and doing all sorts of jobs around the house.

Perhaps John has reformed or preparatory to the bug again biting him of Kurrawa, has a 8CR322 nearly going on 6, works 7 Mc. occasionally.

ZEL of Parkes, is consistent on 40 and 80, while his opposite ZTZ threatens to make a comeback. On the latter score, ZNS says he has been threatening for two years. Trevor has been busy concreting around the house, painting it too. Now has his ninth sticker for the DX CC, 100 and 108 confirmed. Zone officer ZWN, although he supplied much of the information above, has been excused from contributing these notes as he was in Sydney for the Shapex Show. The weather was extremely wet as was the hospitality afforded by Colin ZABD. Whether ZABD's visit to ZWN's or vice-versa was the most pleasant remains to be proved—reactions however were similar. Hugo however has managed a few new countries since his return and admires new QSLs from HSWLAA and MPZAA. ZEX, of Springwood, is sworn off until a new frequency meter is produced. ZLZ, of Wentworth Falls, has been hitting the news on 144, chucked up an over 100 miles contact with ZANU in Muswellbrook. ZLZ works a few dark week ends, but otherwise not active, will chase the DX again about Xmas.

VICTORIA

CENTRAL WESTERN ZONE

The main item of interest is the Zone Convention to be held at Ararat on Sunday, 16th September, commencing about 12 noon. The afternoon event—the Tx Hunt on 3.5 Mc—carries worthwhile prizes for the winner, three miniature tubes (6AQ5 and 6AQ6) donated by ZPD. In addition ZKU has donated a special prize for the first zone station to find the Tx so go to it chaps and don't let other zones run off with the spoils. ZKU has also donated a prize to the best piece of Ham-built equipment on display on revamping disposal. Winner of this section to be determined by ballot of those present. ZARL has donated a prize to be won by the winner of a brain warming competition. All in all we think a very enjoyable day will be spent by those who make the trip, so mark the date on the calendar and keep it free. A detailed programme will be included in next month's notes, and over VK3WI. Our worthy President ZKU is back on the air again, and has been heard pounding away

To All Readers of . . .

"AMATEUR RADIO"

GERARD & GOODMAN LTD.

192-196 RUNDLE STREET, ADELAIDE, S.A.

Supply all the necessary Gear for enthusiastic Hams

- ★ Power Transformers, Chokes
- ★ Eddystone Receivers
- ★ Eddystone Short Wave Components
- ★ Belling and Lee Short Wave Components
- ★ Mica and Ceramicon Condens.

- ★ I.R.C. and ERIE Resistors
- ★ Microphones
- ★ Co-axial Cables
- ★ Chassis and Metal Cabinets
- ★ Valves—Dials

- ★ University Meters and Test Equipment
- ★ Taylor Test Equipment
- ★ Recording and Play-Back Motors
- ★ Gramophone Pick-ups
- ★ Also Bala and Goodman Speakers

GERARD & GOODMAN LTD. ADELAIDE, S.A.

Two visits this month. 3TL from Kerang, on a week-end visit, and possibly the last of 3JW for awhile. 3JW is a very good friend, the former VK3. We shall miss you Charlie, and will have long remember you and your diverse efforts. VK3 has certainly gained something from the time he has been in the States. Inception to date is 2 miles to a portable RX in the car. Bill is putting a beam up so all should be in the bag before the end of the year. For a tower, 3ARM (out west) has revamped the 756 and now is rolling in on 35—don't forget to get a 3500 watt PA for 3JW. 3JW's to put a 638 in the s.s.b. 3DZ is still pegging away on 7 Mc. s.s.b. but is looking forward to getting on 14 Mc., where again he will be a big help. 3JW is a fellow who brings me to the thought for today: 'Are, our AX's keeping pace with advances in

NORTH EASTER NZONE

By the time these notes reach print the Convention will be over and new officers elected including a new zone correspondent. SYV donated a pair of \$15 which will have been used by the zone committee to purchase a piece of home-made equipment at the Convention. Zone hook-up was somewhat of a marathon lasting 4 p.m. SUI was on deck for the hook-up from SCI's after travelling 35 miles from the zone office. The weather was perfect. SCI having fun and games with rotary converters in a d.c. area, but the trouble is worth it. Sid, RS 59 plus now. Chas SACW is building an inter-com set on his utility so that each man can hear the other. The hook-up is along a 1 metre mobile gear also being built. Doing fine work on 20 metres so I hear.

JACK playing aerobatics with R/C plane too close to ground; it did! **3FD** working ZLS on 40 metres; **SGD** now has new QTH, has left batteries for the a.c. **JAJO** holidaying. I mean honeymooning, in VK4. **JAT** has been presented with another female harmonic. Best wishes to **XYL** from zone members Alec. Your correspondent has a very new QTH but don't ask **XYL** about radio gear. Quite a taboo subject whilst settling in. **JAGG** still busy with everything except radio. **SPE** in the land of the lost, where are you Len?

SOUTH WESTERN ZONE

JAGD starts with wig, harmonic and tape recorders. **III** has had his shack re-built and is finished in duck egg blue. **SBV** filling little tin boxes up for the first time. **IV** has had a great deal of success; what about building me up a miniature Tin Lan. **JAGV** in the house hook-up on **80**, used an **ATH6B**, f.b. sig. **SYE** has been out for a few days. **IV** has been out you soon Vener. **SADN** on **80** occasionally, does a lot of listening, and busy building new house. **IV** has been out for a few days. **JAGV** is rebuilding, will be some time before he gets on the air. **3HG** and **3JA** fairly active on **40** and **60**. Received some news from the Warrnambool station, **IV** has been out for a few days. It could not be found. Sorry Frank, I'll put it in my log next time. **Bill 3BU** works **ZLS** on **40** and **60**. **IV** has been out for a few days. **JAGL** is expecting a change of **QTH** shortly. **JARE** heard sporadically on **20**. **JAKE** active on **144 Mc.**, the **QXQ60** 40 really pops

3VA, 3GR and 3MH heard in QSO with ZLE on 40 phone. 3HW not active; 3EE also quiet. 3ASV and 3AMH building new rigs; stacks of audio available at 3AMH's. 100THs in p.p. mod. 3GF, 3UT and 3AJI visitors to Ballarat, also 2QI mobile marine. 3ALM delving into the mysteries of that ancient game, golf. FKAB QSOed 3MH on 40 c.w., Mart had a visit from 3RE. 3RU tried hard to get rid of the QRM from 3GR by tipping the jalopy over; no serious damage to QRM as usual. 3YT catching a few on 10, what about trying 40 Alan.

GEELONG AMATEUR RADIO CLUB

The first meeting of the month took the form of a discussion on the previous Exhibition held by the Club after which members were transported to the Clubhouse for a social gathering. All 3A1T, and were shown many pieces of equipment from 60 metres to 144 Mc. The next meeting was devoted to the election of officers. The election of officers resulted as follows: Mr. R. Helgway, 2ABK, President; Mr. P. Cartwright, Sr. Vice-President; Mr. Max Stock, Jr. Vice-President; Mr. W. Brownbill, 3BU, Treasurer; Mr. Lloyd, 3AOL, Treasurer; Mr. F. Freeman, 2AIG, Publicity Officer; Mr. R. Tucker, Librarian. Committee: Messrs. W. Brownbill 3BU, R. W. Brownbill, 3AOL, and Mr. R. Helgway, 2ABK. Technical Advisory: A. Forster, W. Brownbill, E. Kossek, and R. Helgway. It was decided at this meeting to hold all future meetings on a Wednesday night.

QUEENSLAND

It is with sincere regret that we record the passing of Hal Fitzallen (HFF) who lost his life in tragic circumstances in June. Especially do we offer our heartfelt sympathy to his mother who, to my knowledge, was dependent on Hal for her support. What a dreadful blow to us all. The Wireless Institute was represented at the funeral by our Secretary, John Pickles.

Speaking of John Pickles, **WTF** worthy gentlemen was found a time between his various tedious duties of Secretary to build up the major part of a 144 Mc. Tx. John has given me his valuable assistance on several occasions. He did a mighty job on my beam, and so far is the only person to have climbed right to the top. **4WF** started to climb up one day, but I called him back when he started rocking the beam back and forth like a string. **Bill** told me that it was child's play to climb wet sticks like that. He often climbs the 750 foot mast at work—they have a spell every 250 feet—Ugh!

I am led to believe that our country representative, 4UX, is to once more move to Longreach. I guess if it is a permanent move we will have to start looking for a new country representative. It will be difficult to find one so well suited to the job Claude.

By the time this appears in print 4FN should be in New Guinea and probably operating under a VKI call. The country boys clubbed in and gave Frank a small token of their appreciation of service rendered. Frank should have a wonderful time working all the DX. The Queensland Division will be presenting him with an official gift also. I will suggest a thousand VK9 QSL cards, just to make sure we get one if we work him.

Somewhere around the shack are some notes from the country. If I can't find them I know the country correspondents are going to be sore—please forgive me and if located I will submit them for publication next month. Personally I am finding it increasingly difficult to get any time at the typewriter at work.

The number of ionospheric observation forms being returned is rather disappointing when you consider the total membership of the Queensland Division. For May, seven forms were returned, for June we have so far nine on hand. Of course it's still early in the month. The funny, but the city felias don't seem to think there is in the scheme. I have been told that I have too much faith in human nature, I have.

CAIRNS AMATEUR FIELD DAY (From 4MH)

The outing proved to be a very successful and delightful one and the weather superb, though cold. Quite a collection of equipment was used and the Cairns Amateurs were well represented. The following were present: two Amateurs from Alberton. The first call of the day brought an answer from the township of Nelson in New Zealand, followed by a call from the township of Waikanae. Mr. Frank Moody (4PM), the Honorary Technician for the Cairns Aerial Ambulance, stated that the test calls from AMH (portable) were received. The party did great work in putting up antennae and when the main body arrived it was not long before operating commenced. Several stations were kept, the coffee and biscuits in constant supply.

The hidden Tx was worked by all, but not found, although 4DR was observed very close to it. Some of the residents of Kuranda showed keen interest and helped considerably. Cairns amateurs taking part were 4AX, 4FW, 4DR, 4NH, 4W. We had the pleasure of meeting 4HP and 4GA, both of Atherton. The weekly news service from 4WI was received 15.50 on both 7 and 14 Mc. At the conclusion of the field day all voted the day a complete success and finalised the day by a visit to the hydro electric scheme at Barron Falls.

CLARE'S CORNER

When 42B moves to his new QTH and another tower goes up on Wavell Heights, that suburb is going to look like a boom oil city. All within a stone's throw are the beams of 4WJ, 4WF, 4KP and 4CC. Looks like in the near future some form of traffic lights will be necessary to avoid the elements clashing. Looks as if the beam bug has also bitten Harold 4HB and another tower will soon be dotting the landscape.

Heard that 4AH is busy home building, which accounts for his inactivity of late. 4YA has his new rig (pair 805 in push pull) in the air, kicking out the bugs, is now working the DX with the rest of the gang. The marathon of the month was a six-way with a W6 VKs 4RT, 4XA, 4KS, 4HB and 4HG participating. All received good reports and the W6 was tickled pink to work so many VKs at the same time. Talking of Ws, congratulations to

WSUZL on being the first W to receive the Brisbane DX Club certificate. (Wouldn't you if you had rhombics and 87 foot towers?—Sub-Ed.). 4HD in the Buderim Mtns., will soon be heard on 39. Max is erecting a three element beam on that band, and hopes to be on soon.

SOUTH AUSTRALIA

The June general meeting of the VKS Division was held in the wide and spacious auditorium of the first and foremost broadcasting station of the city, the "Radio" building. The local boys who made it quite clear that they had come along for the express purpose of hearing just what the guest speaker, Dr. Ross had to say, were not to be disappointed on their trip abroad. Ross described the various places that he visited with a wealth of detail, and the various nationalities he met, and the different types of the rule and regulations which exist in England regarding the erection of beam antennas in any form or type, in fact it would be difficult to find a more complete and accurate source of information on this subject without first considering its effect upon the local surroundings from a beauty angle, to say the least. The views of the various members of the local council, as well as the

Ross spoke rather caustically concerning the seemingly dictatorial attitude of the British Government towards the Soviet Union, and his own experience in that direction. He pointed out that disposals rear abundance in G. but in W. the grain is about on par with prices in V.K. His description of his flight to the last minute was somewhat amusing. Inverted 829 I had to believe) was decidedly interesting, especially his amazement when he learned that the British were having trouble. It was announced that "owing to the inclement weather, the flight was temporarily postponed." Ross said that in his opinion (and he should know), leads the world in the matter of flying. He also mentioned his visit to one of the largest hospitals in America together with a visit to Yale and Harvard.

He also visited the A.R.R.L. headquarters and painted a living picture of his reception at WIAW by the charming female secretary to the big noise of the home of Amateur Radio. This radiant personality also escorted him to the A.R.R.L. transmitting centre and permitted him to feast his eyes on an array of aërials, beams, transmitters, etc., that have to be seen to be believed.

A few other points that Ross made were that the GRM in Iceland was terrific at times from the point of view of the visitor, but that he received on the whole from the long way round better than from the short, thus avoiding the aforementioned GRM, and last but not least the fact that the GRM was a very good way of obtaining and interesting talk was brought to a close with a confession from Ross that without the terrific cold experienced in England, he would have thought about visiting Iceland. The participants but finally gave in and was sorry that he had not done so earlier. I had intended to tell him that there were no old-fashioned tourists in Iceland, but that he had to be satisfied with the fact that the square windows of the old houses and his natural modesty held me back. The usual vote of thanks was received with genuine approval, and the speaker was given a very pleasant and friendly hand.

During his talk about America, Ross showed a picture of Alcatraz and remarked that with all this open space, free from QRM and very suitable for beams, etc., it was a wonder that "Doc" SMD did not apply for a transfer. Very subtle, very subtle, but "Doc's" reply was a gem, although as very few heard it, I cannot repeat it, although if I was asked politely I might condescend to repeat it.

But the official SWI broadcast on Sunday morning, but a certain Ham whose XYL listened to it, is considering if he will tell his wife kept on saying "you didn't tell me that Ross said that" until he began to wonder that Hal would have a fit or collapse or something. The moral is, always check up on what took place at the meeting before telling the XYL your version of the meeting!

[illegible]

In a QSO between "Doc" SMD and "Pop" SLD recently I heard "Doc" threaten to tell

Murray Nicholson is building his Tx so as to be ready to take the air at short notice, and if all is to be believed he is doing a very credit-

TRK is your scribe owing to TXW being QAL. The June meeting saw quite a crowd at our

WANTED.—H.R.O. 10 and 80 Metre Coil Boxes; also xtal. R. Fleming, 25 Westgate St., Oakleigh, Vic.

BRITISH "WODEN" Multimatch Modulation Transformers

COMPARE THESE POINTS:—

- UNIVERSAL APPLICATION FOR ANY COMBINATION OF TUBES AND OPERATING CONDITIONS.
- HEAVY CORE AND COILS, VACUUM IMPREGNATED, AND ENCLOSED IN STRONG STEEL CAN FILLED WITH SPECIAL HIGH VOLTAGE INSULATING COMPOUND ENSURES SILENT OPERATION AND LONG LIFE.
- EASY-TO-SOLDER CONNECTION TAGS ARE HEAVILY SILVER PLATED, AND THE UNIVERSAL MOUNTING ALLOWES ABOVE OR BELOW CHASSIS WIRING.

Write for full details of Impedance Range.

List No.	Audio Watts	R.F. Input Watts	Max. Sec. Current	Overall Size			Weight lbs. ozs.	Nett Price Inc. Tax
				L.	W.	H.		
UM1	30	60	120 Ma.	3½"	3½"	3½"	5 8	£5/8/6
UM2	60	120	200 Ma.	5½"	4½"	5½"	11 8	£7/7/-
UM3	120	240	250 Ma.	5½"	5½"	5½"	14 8	£9/1/9

WE ALSO CARRY COMPREHENSIVE STOCKS OF:—

- BULGIN AND BELLING & LEE COMPONENTS.
- EDDYSTONE RECEIVERS AND COMPONENT PARTS.
- LABGEAR TRANSMITTING EQUIPMENT.
- A. & R. TRANSFORMERS, CHOKES—Power and Audio.

WILLIAM WILLIS & CO. PTY. LTD.

Established over 89 Years. 428 BOURKE ST., MELB., C.1

Phone: MU 2426

THE EDDYSTONE HAM RECEIVER "MODEL 740"

A Fine Communication Receiver with all
Modern Developments at a Low Price.

Price £66/6/6
PLUS SALES TAX



- ★ 30 Mc. to 620 Metres.
- ★ 450 Kc. I.F.'s.
- ★ Excellent band-spread for Amateur use.
- ★ Sensitive R.F.

NOW AVAILABLE

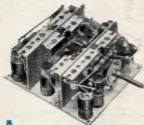


Distributed by:

- VICTORIA: J. H. MAGRATH & CO., 208 Little Lonsdale St., Melbourne.
- WILLIAM WILLIS & CO., 428 Bourke Street, Melbourne.
- N.S.W.: JOHN MARTIN PTY. LTD., 116-118 Clarence Street, Sydney.
- Q'LAND: CHANDLERS PTY. LTD., Cr. Albert & Charlotte Sts., Brisbane.
- WEST. AUS.: CARLYLE & CO. LTD., Hay St., Perth, and 397 Hannan St., Kalgoorlie.
- ATKINS (W.A.) LTD., 894 Hay St., Perth.
- SOUTH AUS.: GERARD & GOODMAN LTD., 192-196 Rundle St., Adelaide.
- TAS.: W. & G. GENDERS PTY. LTD., 33 Cameron St., Launceston, and Liverpool Street, Hobart.
- LAWRENCE & HANSON (ELEC.) PTY. LTD., 120 Collins Street, Hobart.
- NOYES BROS. LTD., 36 Argyle Street, Hobart.

Aust. Factory Representatives: R. H. Cunningham Pty. Ltd., 62 Stanhope St., Malvern, Vic. (UY 6274)

FROM FIRST TO LAST...



A



A Aegis Triple Wave Coil Assembly Type K3 covers BC Band (355-1600 Kc.) and SW Band 15-15 and 40-110 metres.

B Aegis Vibrator Units for every need. $8\frac{1}{2}'' \times 3\frac{1}{2}'' \times 2\frac{1}{2}''$.

C Mid get Broadcast Coil Assembly Unit Type K6. $7\frac{1}{2}'' \times 1\frac{1}{2}'' \times 1-3/16''$ high.

D Aegis Loop Aerials M17 or M17A on oval canvas bakelite formers. $7\frac{1}{4}'' \times 5''$.

E Aegis Tuning and Instrument Knobs. All sizes and types available.

F Aegis Intermediates—range of 27 types including 10.7 Mega. for FM.



C



J



K



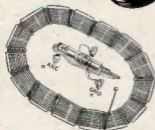
B



F



E



D



G



H

G Aegis Ceramic Insulator—full range of stand off and feed through types.

H Aegis Broadcast Coils—full range of standard types plus special windings as requested.

Here are some typical examples from the comprehensive Aegis range, each one designed and made to exacting standards from first-grade materials. Quality is foremost.

AEGIS COMPONENTS

AEGIS MANUFACTURING COMPANY PTY. LTD.

- MELB.:** Lawrence & Hanson Electrical Pty. Ltd.; Replacement Parts Pty. Ltd.; Vesalis Electrical and Radio Pty. Ltd.; Homcrafts Pty. Ltd.; J. H. McGrath & Co. Pty. Ltd.; John Martin Elect. & Radio Co.; Warburton Franks Ltd.; A. H. Gibson Elect. Pty. Ltd.; Motor Spares Ltd.; A. G. Healing Ltd.; Hartleys Ltd.; Aus. General Electric; Amal. Wireless A/asia Ltd.
- SYD.:** John Martin Pty. Ltd.; Geo. Brown & Co. Pty. Ltd.; Fox & Macgillivuddy Ltd.; Aus. General Elect. Pty. Ltd.; Dominion Factors Pty. Ltd.; Homcrafts Pty. Ltd.; Radio Despatch Service; Davis Radio Co.; Elect. Parts Pty. Ltd.; Lawrence & Hanson Electrical Pty. Ltd. (Sydney and Newcastle); Homcrafts (Newcastle); Bloch & Gerber Ltd.; Boys Radio and Electrical.
- ADEL.:** Geo. Factor (Factory Exp.); Newton MacLaren Ltd.; A. G. Healing Ltd.; Harris, Scarfe Ltd.; Oliver J. Nihon & Co. Ltd.; Gerard & Goodman Ltd.; Unshann & Johnstone Ltd.; Radio Elect. Wholesalers Ltd.; Clarksons Ltd.
- PERTH:** Nicholson Ltd.; A. G. Wyle.
- CHANDLER:** Pty. Ltd.; B. Martin Pty. Ltd.; Crouch & Connah Pty. Ltd.
- LAURENCE & HANSON:** Elect. Pty. Ltd. (Hobart, Launceston); W. & G. Genders Pty. Ltd. (Hobart, Launceston, Burnie); Naves Bros. Ltd. (Launceston); Homcrafts (Launceston, Hobart, Burnie); Gordon A. W. Wood (Launceston).